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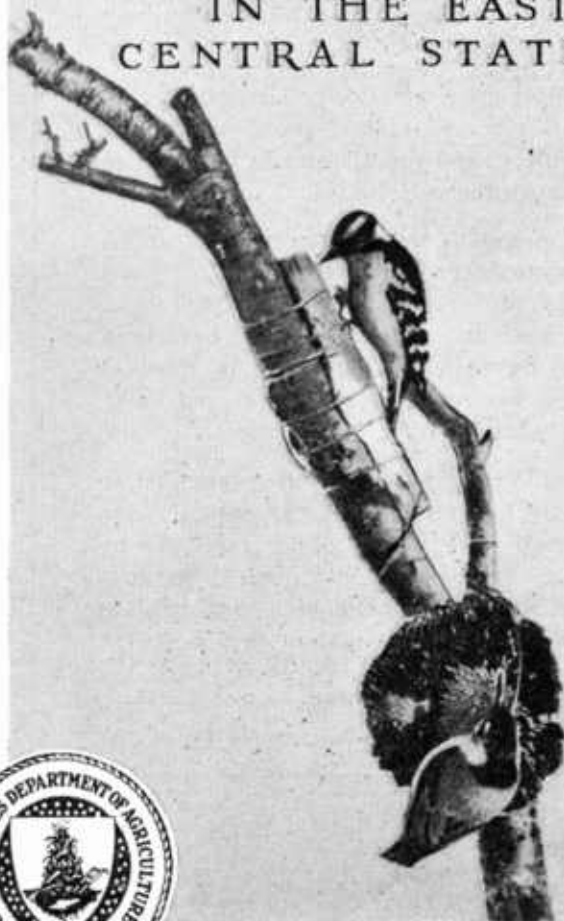
U. S. DEPARTMENT OF
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HOW TO ATTRACT
BIRDS

IN THE EAST
CENTRAL STATES



BIRDS appeal strongly to the interests and affections of mankind. Not only do they charm by their graceful forms, harmonious colors, sprightly actions, and usually pleasing notes, but they have an even more important claim upon our esteem because of their great economic value.

Birds feed upon practically all insect pests. They are voracious, able to move freely from place to place, and exert a steady influence in keeping down the swelling tide of insect life.

For economic as well as for esthetic reasons, therefore, an effort should be made to attract and protect birds and to increase their numbers. Where proper measures of this kind have been taken, an increase of several fold in the bird population has resulted, with decreased losses from depredations of injurious insects.

This bulletin is one of a series intended to describe the best methods of attracting birds in various parts of the United States, especially by providing a food supply and other accessories about the homestead. The area to which it is adapted is shown by the map on page 3.

HOW TO ATTRACT BIRDS IN THE EAST CENTRAL STATES

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CONTENTS

	Page		Page
Means of attracting birds.....	1	Water supply.....	3
Protection.....	1	Food supply.....	4
Breeding places.....	2	Protecting cultivated fruits.....	13

MEANS OF ATTRACTING BIRDS

THE means of increasing the number of birds about the home are few and simple. They comprise adequate protection and the provision of suitable nesting places, food, and water. In a series of publications, of which this bulletin relating to the East Central States (fig. 1) is one,¹ the Bureau of Biological Survey recommends practicable methods of attracting birds about homes in the various parts of the United States. Especial attention will be given to the value of fruit-bearing shrubs and trees, as less information relating to these as a means of attracting birds is available than concerning more widely known but not more important measures, as protection, winter feeding, and the supplying of nesting boxes and water. Furthermore, the last-named measures need not vary so much with the locality as does choice of fruit-bearing shrubs and trees.

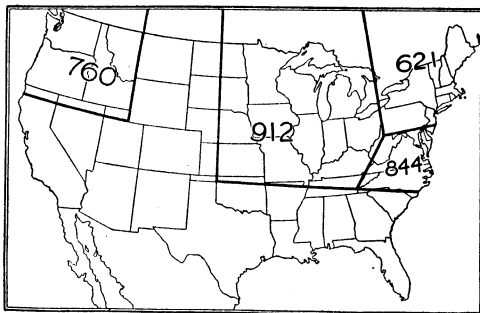


FIGURE 1.—Map of the United States, the area containing the number of this bulletin (912) showing the territory to which this publication applies. Similar bulletins have been prepared for other sections, as indicated by the numbers

PROTECTION

Protection is the prime requisite for increasing the number of birds in any area, and the results of protection are in direct proportion to its thoroughness. Besides being insured against every form of persecution by human kind, birds must be defended from various natural foes. The most effectual single step is to surround the proposed bird sanctuary with a vermin-proof fence. (Fig. 2.) Such a fence should prevent entrance either by digging or by climbing, but will serve its greatest use if it can not be climbed and is therefore

¹ Other bulletins in the series now available are Farmers' Bulletins 621, relating to the Northeastern States; 760, to the Northwestern States; and 844, to the Middle Atlantic States; and (for general distribution) 1456, on Homes for Birds, and 1644, on Local Bird Refuges.

cat proof.² For this purpose the erect part of the fence above ground should be 6 feet high, and the mesh should measure not more than 1½ inches. The overhang should be 2 feet wide, and if strung with wires, these should be not more than 1½ inches apart. If it is impracticable to build an impenetrable fence, the next best device is to put guards (fig. 3) of sheet metal on all nesting trees and on poles supporting bird houses. This should be done in any case where squirrels or snakes are likely to intrude, as it is usually impossible to fence out these animals. Tree guards should be 6 feet or more above ground. Attacks by hawks, owls, crows, jays, or other enemies are best controlled by eliminating the destructive individ-

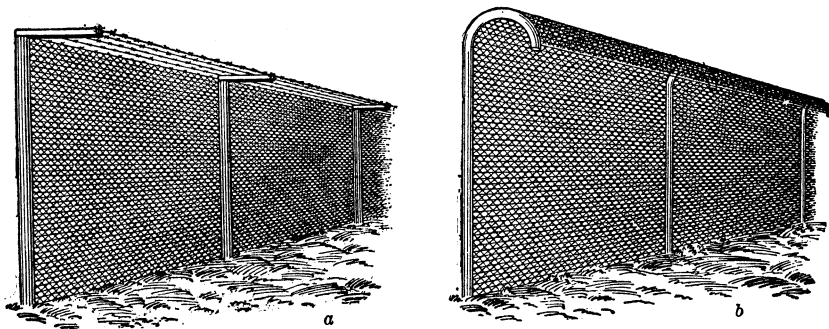


FIGURE 2.—Cat-proof fences: a, With barbed wires; b, with loose overhanging netting

uals. Those who wish to combat English sparrows will find full directions for so doing in Leaflet 61, English Sparrow Control.

BREEDING PLACES

Although a considerable number of our native birds build their nests on the ground, the majority place them in trees or shrubs, either in holes or on the limbs or in the crotches. Shrubby and trees for nesting sites, therefore, are essential for making a place attractive to birds, and a double purpose is served if the kinds planted are chosen from the list of fruit-bearing species given farther on. Shrubs should be allowed to form thickets and should be pruned back severely when young so as to produce numerous crotches.

Constant removal of old trees, and modern tree surgery, have resulted in a great diminution in the number of tree cavities, the natural homes of most of our hole-nesting birds. Fortunately most of these birds will utilize artificial nest cavities, or bird houses. All truly interested in the welfare of birds will see that plenty of bird boxes are available; it is better to do this than to lament the passing of our interesting hole-dwelling species. The sizes useful for various birds, plans for making, and illustrations of numerous bird boxes are given in Farmers' Bulletin 1456, Homes for Birds.

Styles of bird houses may be varied almost endlessly. These structures may be improvised by anyone, but they may be purchased also from numerous dealers. A bird house needs only partial shade,

² Fuller information on vermin-proof fencing may be obtained from Farmers' Bulletin 1613. Propagation of Upland Game Birds.

and houses on poles usually are taken. Martins prefer a house standing apart from trees. These are our only birds occupying colony houses; homes for other birds should have one room only. Entrances to boxes should be sheltered by projecting roofs and should face away from the prevailing wind and rainstorms. All bird houses should be so constructed that the interior may be easily examined and cleaned. It is best to clean out bird houses after every brood; this not only invites reoccupation of the box but rids it of parasites. To destroy thoroughly the latter, a strong disinfectant is required.

Birds as a rule not only do not want bird neighbors too near, but are impatient of human meddling, and therefore should have as much privacy as

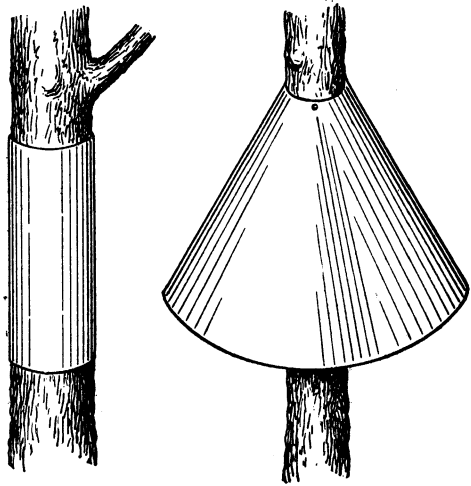


FIGURE 3.—Tree guards

possible during the actual incubating and brooding. Nests built in shrubbery are especially liable to come to a bad end if the birds are disturbed frequently.

If ground-nesting birds, as bobolinks, meadow larks, and bobwhites, are to be protected, grass in the nesting fields must not be cut during the breeding season.

WATER SUPPLY

Nothing has a more potent attraction for birds during hot weather than drinking and bathing places. The birds' water supply should be a pool not more than a few inches deep, the bottom sloping gradually upward toward the edge. Both bottom and edge should be rough, so as to afford a safe footing. A giant pottery saucer (fig. 4, *a*) is an excellent device, or the pool may be made of concrete, or even metal, if the surface be roughened or covered with gravel. (Fig. 4, *b*.)

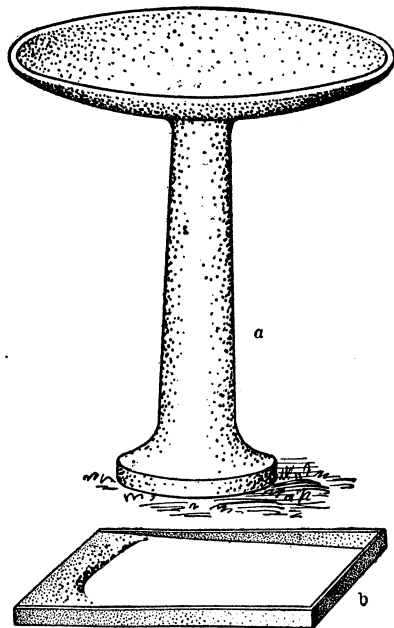


FIGURE 4.—Bird baths: *a*, Pottery; *b*, metal or concrete

The bird bath may be elevated, or it may be on the ground if in an open space where skulking enemies can not approach too near.

A water supply is appreciated in winter as well as in summer. If running water can not be provided, that supplied should be warmed to delay freezing and renewed at least daily.

FOOD SUPPLY

Food supply is the vital factor in bird life and the most important single offering that can be made in efforts to attract birds. It is worth noting that an ample supply of food prior to and during the nesting season tends to increase the number of eggs laid and also the number of broods in a season. Insects and their larvæ, the principal food of many of our birds, usually are sufficiently numerous. On game-bird farms dense growths of vegetation are especially developed for the sake of the insects they will produce to feed the young birds. Aside from insects, bird food may be supplied in two ways—by planting trees, shrubs, and herbs which produce seeds or fruits relished by birds and by exposing food in artificial devices. The most familiar phase of the latter method is winter feeding.

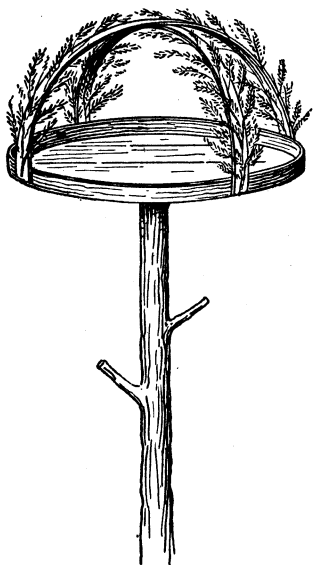


FIGURE 5.—Food tray

ARTIFICIAL FOOD

During the season when the natural food supply is at its lowest ebb birds respond most readily to our hospitality. Winter feeding has become very popular, and the result has been to bring about better understanding between birds and human kind.

The winter foods commonly used include suet or other fat, pork rinds, bones with shreds of meat, cooked meats, meal worms, cut-up apples, birdseed, buckwheat, crackers, crumbs, coconut meat, cracked corn, broken dog biscuits or other bread, hemp seed, millet, nut meats of all kinds (especially peanuts), whole or rolled oats, peppers, popcorn, pumpkin or squash seeds, raw or boiled rice, sunflower seeds, and wheat. The waste product of grain mills, known as screenings, is a valuable

and inexpensive source of food for birds.

The methods of making these supplies available to birds are as varied as the dietary itself. A device very commonly used is the food tray or shelf. (Figs. 5 and 6.) This may be put on a tree or pole, by a window, or at some other point about a building or strung upon a wire or other support on which it may be run back and forth. The last device is useful in accustoming birds to feed nearer and nearer a comfortable observation point. A fault with food shelves is that wind and rain may sweep them clean and snow may cover the food. These defects may be obviated in part by adding a raised ledge about the margin or by placing the shelf in the shelter of a wall or shielding it with evergreen branches on one or more sides.

Feeding devices not affected by the weather are preferable. An excellent one is a coconut with a hole made in one end. (Fig. 7.) The cavity is filled with chopped suet and nuts or other food mixture, and the nut is suspended by a wire from a limb. The size of the hole regulates the character of the guests; if small, large birds can not gobble the supply. The coconut meat as well as the stuffing is eaten.

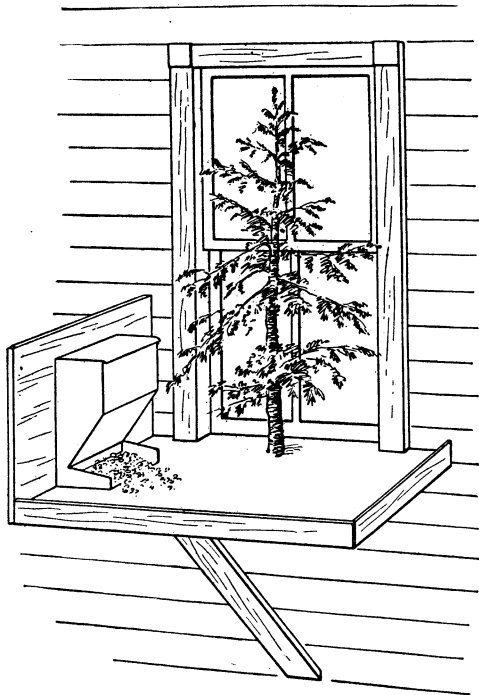


FIGURE 6.—Food shelf



FIGURE 7.—Coconut larder

Cans with small openings may be substituted for coconuts. Food baskets of any desired size made of wire netting or a metal grating may be hung up or fastened to the trunk of a tree. Food mixtures in melted fat may be poured into holes made in a branch or stick (fig. 8) or in cracks of bark or over evergreen branches. All of these devices minimize or counteract the disturbing effects of stormy weather.

More elaborate apparatus for the same purpose comprises various forms of food hoppers (figs. 6 and 9) and food houses.

The food hoppers in common use for domestic fowls are adapted to the feeding of birds, and some special forms are now manufactured for wild birds.

The food house is a permanent structure, with solid roof, and glass on one or more sides to permit observations. (Fig. 10.) The food

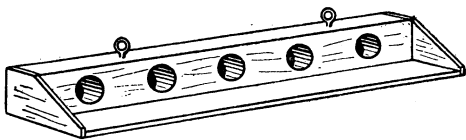


FIGURE 8.—Feeding stick

trays it contains are entirely sheltered from the weather. In one style this result is obtained by mounting the house on a pivot and furnishing it with vanes (fig. 11) which, if large enough, keep the open side always away from the wind.

Game birds and sparrows may be provided with feeding places³ by erecting low hutches or making wigwamlike shocks of corn or grain sheaves under which food may be scattered. The opening should be to the south.

Those who desire to have birds about their homes should not feel that their power to attract them is gone when winter is over. Winter feeding easily passes into summer feeding, and experience proves

that some birds gladly avail themselves throughout the year of this easy mode of getting a living.

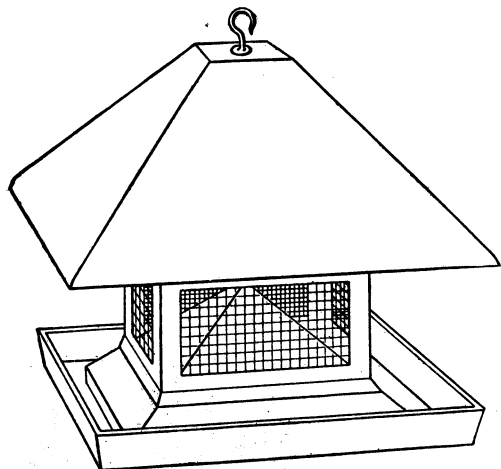


FIGURE 9.—Food hopper (roof detachable)

NATURAL FOOD

We have thus far considered ways of feeding birds tidbits we ourselves have gleaned. We may feed them by another method, by cultivating their natural food plants and allowing them to reap the harvest in their own way.

Less has been done in this respect for the true seed-eating birds than for those fond of pulpy fruits. The reason is obvious—

our seed-eating birds largely patronize weeds which we do not wish to cultivate, while the fruit eaters depend upon many plants which we hold in such esteem for their ornamental value that they are generally cultivated.

FEEDING SEED-EATING BIRDS

Something can be done, however, to attract the seed eaters about our homes. A number of commonly cultivated annual plants, belonging to the same groups as those upon which the birds feed extensively in nature, produce good crops of seeds. These plants, being dependent upon cultivation, can be used without fear that they will become pests. The following are suggested for the purpose: Prince's feather (*Amaranthus cruentus*), love-lies-bleeding (*A. caudatus*), asters, calandrinias, blessed-thistle (*Carduus benedictus*), centaureas, California poppies (*Eschscholtzia*), sunflowers, tarweed, (*Madia elegans*), forget-me-nots, *Polygonum orientale* and *P. sachalinense*, Portulaca, Silene, and sugarcane (sorghum varieties).

The various millets are relished by nearly all seed-eating birds. Common millet (*Panicum miliaceum*), Japanese millet or barnyard grass (*Echinochloa crus-galli*), and German millet or Hungarian grass (*Chætochloa italica*), may be obtained from most seedsmen, and

³ See also Information Leaflet Bi-1099, Winter Feeding of Upland Game Birds.

should be planted in abundance by those wishing to attract granivorous birds. The height and stiffness of stalk of varieties of sorghum should make these abundant seeders valuable in winter. Japanese millet holds its seeds well, and if planted thickly where it can grow up through a horizontal latticework makes a valuable cover and feeding place for winter birds. Canary grass (*Phalaris canariensis*), and various species of *Pennisetum* also are good for seed-eating birds.

Alders and birches bear in their numerous cones a supply of seeds which are eagerly sought for by redpolls, siskins, and goldfinches during the winter. Still another group of birds may be catered to by planting ashes and boxelders. The winged fruits of these trees are opened and the seeds eaten by pine and evening grosbeaks, the visits of these birds being largely regulated by the supply of this kind of food. Larches,

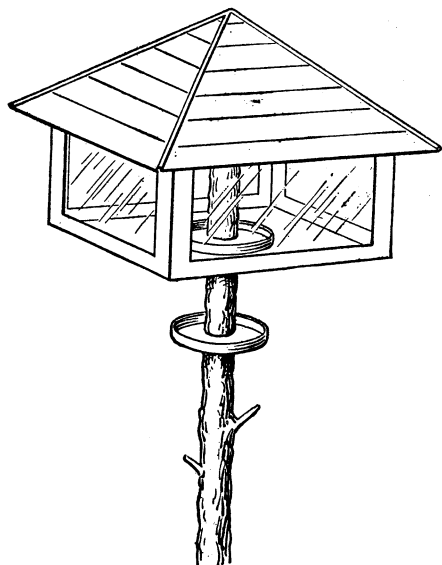


FIGURE 10.—Food house

and other conifers are attractive to crossbills as well as to some of the species just mentioned.

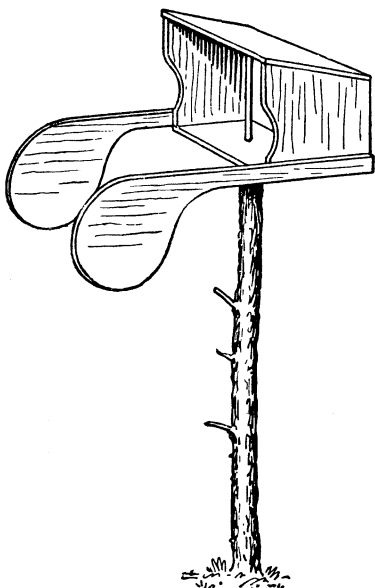


FIGURE 11.—Food house on pivot

FEEDING FRUIT-EATING BIRDS

Feeding fruit-eating birds is best accomplished by planting selected species of fruit-bearing shrubs and trees. Through late spring and summer there is usually an abundance of insect food, in addition to fruit enough for all the birds. So far as fruit alone is concerned, fall is the season of overflowing abundance; in winter the supply gradually decreases, and late winter and early spring are the seasons of actual scarcity. This is the critical time of year for many birds, and a plentiful supply of wild fruit will tide them over. Fortunately, everywhere in the United States there are some fruits that persist until there is no longer any need of them. If enough are planted, no

birds able to live on this class of food should starve. The best of these long persisting fruits are juniper, bayberry, thorn apples and related fruits, holly, and snowberry.

Table 1 shows the relative popularity with birds of important genera of fleshy fruits. From these genera and a few others have been selected the species adapted to the East Central States that make up Table 2. Various considerations have influenced choice, as ornamental value, earliness, lateness, or length of fruiting season, and especially availability of the plants through ordinary channels of trade. The data on fruiting seasons have been compiled from the principal herbaria of the East Central States, with a few additions from other sources.

The fruiting seasons indicated include the earliest and latest dates recorded for the East Central States. Hence it can not be expected that fruit would be available in any one locality throughout the entire bearing season of a plant unless a large number of plants are set out and in a variety of situations. Purchasers may obtain from nurseries information as to where, when, and how to plant.⁴ Notes on species which may be substituted for some of those in the main list, and other comments follow the table.

⁴ See also Farmers' Bulletin 1567, Propagation of Trees and Shrubs.

TABLE 1.—*Fleshy fruits attractive to birds*¹

Common name	Scientific name	Number of species of birds known to eat the fruit ²	Desirable kinds of birds most fond of the fruit ³
Juniper; red cedar....	Juniperus.....	39	Yellow-shafted flicker, evening grosbeak, pine grosbeak, purple finch, cedar waxwing, myrtle warbler, mocking bird, robin, eastern bluebird.
Greenbrier.....	Smilax.....	39	Cardinal, mocking bird, brown thrasher, catbird, hermit thrush, robin.
Bayberry.....	Myrica.....	73	Bobwhite, downy woodpecker, yellow-shafted flicker, eastern phoebe, meadow lark, chewink, tree swallow, white-eyed vireo, myrtle warbler, brown thrasher, catbird, Carolina wren, black-capped chickadee, hermit thrush, eastern bluebird.
Hackberry.....	Celtis.....	40	Yellow-bellied sapsucker, yellow-shafted flicker, cardinal, cedar waxwing, mocking bird, brown thrasher, robin, eastern bluebird.
Mulberry.....	Morus.....	52	Yellow-billed cuckoo, red-headed woodpecker, red-bellied woodpecker, downy woodpecker, kingbird, Baltimore oriole, orchard oriole, cardinal, purple finch, scarlet tanager, cedar waxwing, red-eyed vireo, yellow warbler, mocking bird, catbird, wood thrush, robin.
Pokeberry.....	Phytolacca.....	49	Mourning dove, yellow-shafted flicker, kingbird, cardinal, mocking bird, catbird, hermit thrush, gray-cheeked thrush, olive-backed thrush, robin, eastern bluebird.
Spicebush.....	Benzoin.....	17	Kingbird, red-eyed vireo, wood thrush, veery.
Sassafras.....	Sassafras.....	18	Bobwhite, kingbird, red-eyed vireo, catbird, veery, robin.
Strawberry.....	Fragaria.....	46	Chewink, catbird, brown thrasher, wood thrush, robin.
Raspberry; blackberry.	Rubus.....	118	Ruffed grouse, bob white, red-headed woodpecker, yellow shafted flicker, kingbird, Baltimore oriole, orchard oriole, pine grosbeak, song sparrow, fox sparrow, white-throated sparrow, chewink, California towhee, spurred towhee, cardinal, rose-breasted grosbeak, black-headed grosbeak, cedar waxwing, red-eyed vireo, mocking bird, catbird, brown thrasher, tufted titmouse, wren-tit, olive-backed thrush, wood thrush, robin, eastern bluebird.
Rose.....	Rosa.....	25	Ruffed grouse, sharp-tailed grouse, prairie chicken, bobwhite.
Mountain ash.....	Sorbus.....	14	Red-headed woodpecker, Baltimore oriole, evening grosbeak, pine grosbeak, cedar waxwing, Bohemian waxwing, catbird, brown thrasher, robin.
Chokeberry.....	Aronia.....	13	Meadow lark, brown thrasher.
Red haw.....	Crataegus.....	33	Ruffed grouse, pine grosbeak, purple finch, robin.
Dwarf apples.....	Malus.....	(4)	Ruffed grouse, ringneck pheasant, red crossbill, pine grosbeak, purple finch, cedar waxwing, mockingbird, robin.
June berry.....	Amelanchier.....	40	Yellow-shafted flicker, Baltimore oriole, cedar waxwing, catbird, hermit thrush, veery, robin.
Wild cherry.....	Prunus.....	74	Ruffed grouse, bobwhite, mourning dove, red-headed woodpecker, yellow-shafted flicker, kingbird, Bullock oriole, Baltimore oriole, orchard oriole, evening grosbeak, purple finch, rose-breasted grosbeak, black-headed grosbeak, Louisiana tanager, red-eyed vireo, cedar waxwing, mocking bird, catbird, brown thrasher, olive-backed thrush, wood thrush, robin, eastern bluebird.
Sumac ⁴	Rhus.....	93	Ruffed grouse, bobwhite, valley quail, downy woodpecker, red-bellied woodpecker, red-shafted flicker, yellow-shafted flicker, phoebe, goldfinch, golden-crowned sparrow, chewink, white-eyed vireo, Audubon warbler, mocking bird, catbird, California thrasher, brown thrasher, Carolina wren, black-capped chickadee, Carolina chickadee, wren-tit, hermit thrush, robin, eastern bluebird.
Pepperberry.....	Schinus.....	11	Cedar waxwing, phainopepla, hermit thrush, varied thrush, robin.

¹ Barberries (*Berberis*), buckthorn (*Rhamnus*), and currants (*Ribes*) are omitted because they serve as alternate hosts of rust, attacking wheat, oats, and white pine, respectively.

² When 10 or more.

³ Included on the basis of field observation or because fruit was found in 10 or more stomachs.

⁴ Thirty-eight kinds of birds are known to feed on apples of various sorts, but it is not known just how many seek the small-fruited flowering apples, which are the best to plant for birds.

⁵ Only nonpoisonous species of sumac are considered.

TABLE 1.—*Fleshy fruits attractive to birds*—Continued

Common name	Scientific name	Number of species of birds known to eat the fruit	Desirable kinds of birds most fond of the fruit
Holly.....	Ilex.....	45	Ruffed grouse, bobwhite, valley quail, yellow-bellied sapsucker, yellow-shafted flicker, cedar waxwing, mocking bird, catbird, brown thrasher, hermit thrush, robin, eastern bluebird.
Supple-jack.....	Berchemia.....	13	Mocking bird, robin.
Wild grape.....	Vitis.....	77	Ruffed grouse, bobwhite, pileated woodpecker, red-bellied woodpecker, red-shafted flicker, yellow-shafted flicker, kingbird, cardinal, cedar waxwing, mocking bird, catbird, brown thrasher, wood thrush, veery, robin, western bluebird, eastern bluebird.
Virginia creeper.....	Parthenocissus.....	39	Red-headed woodpecker, red-bellied woodpecker, yellow-bellied sapsucker, yellow-shafted flicker, evening grosbeak, purple finch, scarlet tanager, red-eyed vireo, mocking bird, brown thrasher, tufted titmouse, hermit thrush, olive-backed thrush, gray-cheeked thrush, robin, eastern bluebird.
Buffaloberry.....	Shepherdia.....	16	Sharp-tailed grouse, pine grosbeak.
Silverberry, Russian olive, etc.	Elaeagnus.....	(⁶)	Sharp-tailed grouse, prairie chicken, cedar waxwing, catbird, robin.
Wild sarsaparilla.....	Aralia.....	14	Bobwhite, robin.
Dogwood.....	Cornus.....	86	Ruffed grouse, bobwhite, downy woodpecker, yellow-shafted flicker, red-shafted flicker, kingbird, evening grosbeak, pine grosbeak, purple finch, white-throated sparrow, song sparrow, cardinal, cedar waxwing, warbling vireo, red-eyed vireo, catbird, brown thrasher, hermit thrush, olive-backed thrush, gray-cheeked thrush, wood thrush, robin, eastern bluebird.
Sour gum.....	Nyssa.....	36	Yellow-shafted flicker, purple finch, cedar waxwing, gray-cheeked thrush, olive-backed thrush, robin.
Crowberry.....	Empetrum.....	16	Pine grosbeak, snowflake.
Bearberry.....	Arctostaphylos.....	16	Ruffed grouse, dusky grouse, valley quail, mountain quail, fox sparrow, wren-tit.
Huckleberry.....	Gaylussacia.....	35	Pine grosbeak, chewink, robin.
Blueberry.....	Vaccinium.....	67	Ruffed grouse, valley quail, kingbird, orchard oriole, pine grosbeak, chewink, cedar waxwing, catbird, brown thrasher, black-capped chickadee, tufted titmouse, hermit thrush, robin, eastern bluebird.
Beautyberry.....	Callicarpa.....	10	Mocking bird, brown thrasher.
Partridgeberry.....	Mitchella.....	10	Ruffed grouse.
Elderberry.....	Sambucus.....	106	Valley quail, red-headed woodpecker, yellow-shafted flicker, eastern kingbird, Arkansas kingbird, black phoebe, California towhee, white-crowned sparrow, rose-breasted grosbeak, black-headed grosbeak, phainopepla, red-eyed vireo, mocking bird, catbird, brown thrasher, California thrasher, wren-tit, olive-backed thrush, robin, western bluebird, eastern bluebird.
Snowberry.....	Symphoricarpos.....	25	Sharp-tailed grouse, evening grosbeak, pine grosbeak, varied thrush.
Blackhaw.....	Viburnum.....	23	Ruffed grouse, yellow-billed cuckoo, yellow-shafted flicker, purple finch, rose-breasted grosbeak, cedar waxwing, catbird, brown thrasher, robin, eastern bluebird.
Honeysuckle.....	Lonicera.....	15	Bobwhite, pine grosbeak, white-throated sparrow, catbird, brown thrasher, hermit thrush, robin.

⁶ Data given are based entirely on field observations; total number of birds eating the various species of *Elaeagnus* unknown.

TABLE 2.—Seasons of fruits attractive to birds

Common name	Scientific name	Native or introduced	Fruiting season											
			Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Juniper ¹	<i>Juniperus communis</i>	Native												
Red cedar	<i>Juniperus virginiana</i>	do												
Green olive	<i>Smilax rotundifolia</i>	do												
Hackberry	<i>Celtis occidentalis</i>	do												
Red mulberry ²	<i>Morus rubra</i>	do												
Pokeweed	<i>Phytolacca americana</i>	do												
Japanese barberry	<i>Berberis thunbergii</i>	Introduced												
Spicebush	<i>Benzoin cedifolia</i>	Native												
Sassafras	<i>Sassafras verticillatum</i>	do												
Wild strawberry	<i>Fragaria americana</i>	do												
Do	<i>Fragaria virginiana</i>	do												
Black raspberry	<i>Rubus occidentalis</i>	do												
Dewberry ²	<i>Rubus procumbens</i>	do												
Meadow rose	<i>Rosa blanda</i>	do												
Mountain ash ¹	<i>Sorbus americana</i>	do												
Flowering apple	<i>Pyrus floribunda</i>	Introduced												
Chokeberry	<i>Pyrus melanocarpa</i>	Native												
Juneberry ²	<i>Amelanchier canadensis</i>	do												
Red haw	<i>Crataegus coccinea</i>	do												
Washington hawthorn ³	<i>Crataegus phaenopyrum</i>	do												
Bird cherry	<i>Prunus pennsylvanica</i>	do												
Wild black cherry	<i>Prunus serotina</i>	do												
Fragrant sumac	<i>Rhus aromatica</i>	do												
Smooth sumac	<i>Rhus glabra</i>	do												
Evergreen holly ^{2 4}	<i>Ilex opaca</i>	do												
Swamp holly ^{2 4}	<i>Ilex decidua</i>	do												
Black alder ⁴	<i>Ilex verticillata</i>	do												

¹ Available only in South during about first month of season shown.² Native only in southern part of area; may be cultivated elsewhere.³ Native only in northern part of area; may be cultivated elsewhere.⁴ Sexes tending to be on separate plants; both required.

TABLE 2.—Seasons of fruits attractive to birds—Continued

Common name	Scientific name	Native or introduced	Fruiting season											
			Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Bittersweet.....	<i>Celastrus scandens</i>	Native.....												
Buckthorn.....	<i>Rhamnus alnifolia</i>	do.....												
Summer grape.....	<i>Vitis aestivalis</i>	do.....												
River grape.....	<i>Vitis vulpina</i>	do.....												
Ampelopsis ^{1 2}	<i>Ampelopsis cordata</i>	do.....												
Virginia creeper.....	<i>Parthenocissus quinquefolia</i>	do.....												
Buffaloberry ³	<i>Shepherdia canadensis</i>	do.....												
Wild sarsaparilla.....	<i>Aralia nudicaulis</i>	do.....												
White dogwood.....	<i>Cornus paniculata</i>	do.....												
Flowering dogwood.....	<i>Cornus florida</i>	do.....												
Red osier.....	<i>Cornus stolonifera</i>	do.....												
Sour gum.....	<i>Nyssa sylvatica</i>	do.....												
Wintergreen ³	<i>Gaultheria procumbens</i>	do.....												
Bearberry.....	<i>Arctostaphylos uva-ursi</i>	do.....												
Black huckleberry.....	<i>Gaylussacia baccata</i>	do.....												
Early sweet blueberry.....	<i>Vaccinium pennsylvanicum</i>	do.....												
Canada blueberry ³	<i>Vaccinium canadense</i>	do.....												
Persimmon.....	<i>Diospyros virginiana</i>	do.....												
Privet.....	<i>Ligustrum vulgare</i>	Introduced.....												
Partridgeberry.....	<i>Mitchella repens</i>	Native.....												
Common elder.....	<i>Sambucus canadensis</i>	do.....												
Red-barked elder ³	<i>Sambucus racemosa</i>	do.....												
Arrowwood.....	<i>Viburnum acerifolium</i>	do.....												
Do.....	<i>Viburnum dentatum</i>	do.....												
Sheepberry.....	<i>Viburnum lentago</i>	do.....												
High-bush cranberry.....	<i>Viburnum opulus</i>	do.....												
Snowberry.....	<i>Symphoricarpos racemosus</i>	do.....												
Fly honeysuckle ³	<i>Lonicera cerulea</i>	do.....												
Glaucous honeysuckle.....	<i>Lonicera dioica</i>	do.....												
Sullivant's honeysuckle.....	<i>Lonicera sullivanti</i>	do.....												

¹ Available only in South during about first month of season shown.² Native only in southern part of area; may be cultivated elsewhere.³ Native only in northern part of area; may be cultivated elsewhere.

NOTES ON TABLE 2

- Juniper. *Juniperus horizontalis* holds its fruit as well as the others but is easily covered by snow. Yew (*Taxus canadensis*), season middle of July to middle of September, should be mentioned here. It is ornamental, furnishes bird food, and may be cultivated anywhere in this area.
- Hackberry. *Celtis mississippiensis* may be substituted in the South.
- Mulberry. *Morus alba* and *M. tatarica* also may be used.
- Pokeweed. Let it grow through shrubs or a trellis which will support it in winter.
- Strawberry. Little dealt in; must usually be transplanted from woods and fields.
- Dewberry. *Rubus triflorus* suited to wet situations, *R. canadensis* for the North, and *R. hispidus* are good substitutes.
- Rose. *Rosa setigera*, *R. virginiana (lucida)*, and *R. carolina* may be substituted. The last is adapted to wet places.
- Chokeberry. Often called *Pyrus* or *Aronia nigra*. *P. arbutifolia*, another native species, retains its fruit just as long, but the fruit becomes very dry toward the end of the season.
- June berry. *Amelanchier canadensis*, sold by nurserymen, is a composite species. Several species are now recognized, among which *A. laevis* is a notably early fruiter and *A. sanguinea* a late one. Some fruit of June berries occasionally hangs much later than the season indicated, but in very dry condition.
- Thorns. The species recommended are those usual in the trade; most others will serve as well.
- Cherry. *Prunus pumila*, a low plant of sandy areas, and *P. virginiana* also may be used.
- Sumac. *Rhus copallina* or *R. hirta* may be substituted.
- Grape. *Vitis cordifolia* may be added.
- Virginia creeper. Often listed under the names *Ampelopsis* and *Parthenocissus*. The Japanese creeper or Boston ivy (*P. tricuspidata*) is a good introduced substitute.
- Buffaloberry. *Shepherdia (Lepargyrea) argentea*, the true buffaloberry, furnishes good bird food. Other plants in this family, the oleasters (*Elæagnus longipes*, *E. angustifolia*, *E. multiflora*, *E. parviflora*, and *E. umbellata*) also are good.
- Wild sarsaparilla. *Aralia racemosa* may be substituted.
- Dogwood. *Cornus alternifolia* and *C. asperifolia*, native, and *C. alba* and *C. sanguinea*, introduced, are worthy substitutes.
- Huckleberry. *Gaylussacia baccata* is often sold as *G. resinosa*.
- Blueberry. Any native species may be substituted.
- Privet. *Ligustrum acuminatum*, *L. amurense*, *L. ciliatum*, *L. ibota*, and *L. microcarpum*, all introduced, are equally good. Must not be clipped; berries borne on outer twigs.
- Snowberry. *Symphoricarpos occidentalis* is just as good.

PROTECTING CULTIVATED FRUITS

Birds devour cultivated fruit principally because the processes of cultivation diminish the wild supply. The presence of wild fruit in a locality always serves to protect domestic varieties, especially when the wild trees or shrubs are of the same kinds as the cultivated ones and ripen earlier. Among those most useful for the purpose are mulberry, wild blackberries and strawberries, June berry, wild cherry, and elderberry. Species suitable for the East Central States are shown in Table 3.

TABLE 3.—Seasons of fruits useful to protect cultivated varieties

Common name	Scientific name	Native or in- troduced	To protect—	Fruiting season							
				May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Wild strawberry	<i>Fragaria virginiana</i>	Native	Strawberries.....	—	—	—	—	—	—	—	—
Dewberry	<i>Rubus procumbens</i>	do	Raspberries and black berries	—	—	—	—	—	—	—	—
Wild blackberry	<i>Rubus americanus</i>	do	do	—	—	—	—	—	—	—	—
Do	<i>Rubus canadensis</i>	do	do	—	—	—	—	—	—	—	—
Wild gooseberry	<i>Ribes cynosbati</i>	do	do	—	—	—	—	—	—	—	—
Red mulberry	<i>Morus rubra</i>	do	Cherries.....	—	—	—	—	—	—	—	—
White mulberry	<i>Morus alba</i>	do	do	—	—	—	—	—	—	—	—
June berry	<i>Amelanchier canadensis</i>	Introduced	do	—	—	—	—	—	—	—	—
Wild red cherry	<i>Prunus pennsylvanica</i>	do	do	—	—	—	—	—	—	—	—
Glaucous honeysuckle	<i>Lonicera dioica</i>	do	do	—	—	—	—	—	—	—	—
Red-barked elder	<i>Sambucus racemosa</i>	do	do	—	—	—	—	—	—	—	—
Flowering crab apple	<i>Pyrus floribunda</i>	Introduced	Apples and pears	—	—	—	—	—	—	—	—
Western crab apple	<i>Pyrus ioensis</i>	Native	do	—	—	—	—	—	—	—	—
Chokeberry	<i>Pyrus melanocarpa</i>	do	do	—	—	—	—	—	—	—	—
Cockspur thorn	<i>Crataegus crus-galli</i>	do	do	—	—	—	—	—	—	—	—
White thorn	<i>Crataegus punctata</i>	do	do	—	—	—	—	—	—	—	—

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